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ABSTRACT

Arguing that new strategies can improve upon traditional college and university geography teaching, based on a "feeding-in-of-information" model, selected assumptions of the High School Geography Project (HSGP) strategies are presented. The HSGP has utilized new findings in learning theory and studies of the structure of knowledge. (1) The college teacher, who is a subject specialist, produces better instructional materials if aided by specialists in such processes of teaching as concept formation and use, value and motive formation, analysis of objectives, epistemological analysis, and programming. (2) Concept-orientation should be foremost; that is, information should be used only to the extent necessary to teach geographical concepts. (3) A wide variety of instructional media, offering diverse perceptual experiences to the students' senses, increases the probability that interest will be maintained and that concepts will be learned, concept formation being a non-verbal process. (4) Inquiry learning underlies all of the other strategies, since it is in sensing and solving problems that students learn. Implications of adopting these strategies, as well as possible obstacles to their adoption, are also discussed. This paper will be published in Journal of Geography, December 1970. (DJB)

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STRATEGIES OF THE HIGH SCHOOL GEOGRAPHY PROJECT FOR THE COLLEGES: A NEW HERESY*

by

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This paper takes the heretical position that several strategies of the High School Geography Project (HSGP) are appropriate to include among efforts to improve the teaching of geography in the colleges and universities. This is heresy inasmuch as HSGP represents a set of assumptions about teaching and learning that is fundamentally different from what one finds operating in the typical college classroom--the former is tied closely to recent research on learning while the latter is the product of educational folk-lore and a tradition that rewards research and scholarship oftentimes to the neglect of teaching. In the spirit of this tradition, the college professor typically finds discussion of pedagogy inappropriate if not jejune. If this stereotype is too glib, here is a more complex one:

> ...The college teacher is a patchwork of paradoxes, and the greatest of these is the claim to be two things simultaneously, pedagogue and professional, teacher and specialist in what he teaches. These

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counterclaims are rarely reconciled.

> After seven to ten years of higher education, he typically embarks on a teaching career with little or no technical training in pedagogy, the task to which he will devote most of his working hours. If he is sensitive to his failings, he will spend much of his career in bumbling trial and error, seeking the pedagogical password. The output of the task to which he devotes most of his life goes unevaluated; his incidental research and writing are likely to be assessed with the greatest care. He celebrates reason but acts, persistently, on faith. For he assumes that he is altering others' behavior, their ways of thinking. Yet if he has any evidence on this score, it is the flimsiest, self-persuading sort of evidence (as, e.g., a final examination demanding the regurgitation of material whose source, relevance, retention, and ultimate use are matters of murky obscurity). Should someone propose that this process be scrutinized in the light of the same reason that he elsewhere honors, he is likely to guard the mystic alchemy of the teaching process, declaring it an ineffable thing beyond calculation. He would not threaten the delicate equipoise of student-teacher relationship by committing, as Auden put it, 'a social science.'
>
> If in his daily work the teacher prefers the sylvan shades of mystery to demonstrable veritas, there will be little lux to shed on the question: 'What am I doing?'[1]

If as college teachers we begin to give serious thought to that question, we may come to realize that we have been teaching in much the same way as we were taught and that all is not right. This was brought forcefully home to me when I recalled a comment made to me by a student on the last day of a course I gave in 1963: "Mr. Hill, you sure do know a lot!" He meant to compliment, and at the time I was foolish enough to be flattered (I was fresh out of graduate school in my first full-time teaching job). But thinking about that comment later, I began to realize that I had failed in that course and in all the others as well; I have come to realize that to demonstrate that one "knows a lot" is not necessarily to teach. In this matter, the public schools are far ahead of the colleges and universities: In the schools, "Show-and-Tell" has become common parlance. But in the typical college classroom, the only "Show-and-Tell" comes from the professor

behind the lectern. Even in the "liberal" classrooms, the commonplace "discussion" sessions are teacher-dominated and frequently

> ...the modern Socrates, like his famous predecessor, plays cat and mouse with his students, pretending to misunderstand, constructing absurd paraphrases, making ironic comments which amuse some of his listeners at the expense of others, and so on.[2]

It is this situation that leads me to think that the "pedagogical password," at least as far as the colleges and universities are concerned, is heretical.

We have great need today for methods of education more effective than the pitifully inadequate notion called by Harries the "feeding-in-of-information model,"[3] the basic assumption of which is that the lecturer lectures and the student learns. (This is a good example for Carl Sauer's recent definition of models: "The world as you'd like it."[4]) This concept, too frequently held by college teachers, perpetuates a "vicious circle" of poor education, and leads to gloomy views such as the following by H. Bentley Glass:

> A limiting factor in the growth of science is the rapid rate of educational obsolescence forced upon us by the rapidity with which science and technology grow and bring about change in human society. An education in science has now about the life of an automobile. A scientist must constantly renew, extend, and reorganize his knowledge, or in approximately eight years he will be beyond hope as a teacher or practitioner. Our schools and universities seem to have made little change in organization, or even in curricula, to counteract educational obsolescence in our time.[5] [Emphasis added]

Kenneth Boulding reports reading, with mixed pleasure, that the year 1910 was a crucial year in human history because this was the year in which the medical profession began to do more good than harm, and Boulding doubts that the teaching profession has reached this watershed yet.[6]

Notwithstanding such views, there has been a significant thrust toward new concepts of teaching and learning in recent years, with particular

attention to the basic structures of knowledge and to "learning how to learn." Such ideas are in part a response to the challenge of the "knowledge explosion."

This new emphasis is, however, more than a mere tactic for dealing with the dizzying increase of knowledge. Previously reserved for graduate students, graduate faculty, and research scholars who comprise the elite corps of academia, it is a philosophy and strategy of teaching and learning that, as a new pattern, is experiencing a re-birth at other levels of the educational system. Many of the elementary and secondary curriculum projects, building upon knowledge coming from careful descriptive research on learning, have been at the forefront of this impetus. It is perhaps paradoxical but certainly distressing that most university academicians know virtually nothing of this nascent pattern, and yet the implementation of this emphasis in the schools and colleges, if desired, would require massive attention to and rethinking of our methods of educating teachers and children and college students in general.

The foregoing is an attempt to provide, at least partially, a rationale for stewing about geographic teaching and learning. Admittedly, there is a great deal more to be said about the problem, but I want to go on to say what I think HSGP strategies are and why, as college teachers, we should give them serious consideration. I do not intend to describe the contents of the HSGP materials, let alone defend them, but rather I want to discuss the methodology of HSGP, i.e., what assumptions underlie this work in terms of teaching and learning? These assumptions are characteristic of the nascent pattern mentioned above, and they are not unique to HSGP, which is

referred to here only to have a specific vehicle--one familiar to some goegraphers--with which to discuss some of these basic teaching and learning assumptions. In a short paper, one cannot account for the gamut of HSGP methodology, and thus a selected few of the points judged most significant to college instruction are emphasized here.

First, and perhaps most obvious, is the assumption that pre-packaged, carefully-structured, instructional materials developed by diverse specialists will improve teaching and learning in geography. HSGP materials were developed by a host of persons, each with different points of view and special skills. This is significant because of one of the most important outcomes of recent research in learning, and that is that the total educative process is far more complex than is implied in our present ways of teaching.[7] For the most part, and particularly at the college level, courses are developed by the professor who is to teach them. The ubiquity of this individualistic approach reflects the widely-held assumption that the educative process is relatively simple, and that the abilities to deal adequately with it lie within the purview of the individual professor.

When viewed in the light of current thinking about teaching and learning, however, this assumption is untenable. The college teacher, by virtue of his typical training, is a subject-matter specialist, and yet course and curriculum development, since it is not an undifferentiated whole field, requires the competencies of not only the subject-matter specialist but also those of the epistemologist, the logician, the cognitive psychologist, the programmer, the media specialist, and the curriculum-oriented administrator. A complex division of labor is necessitated to deal with several distinct

processes such as concept formation and use, value and motive formation, analysis of objectives, epistemological analysis of the nature of knowledge and of each field of knowledge, verbal interaction analysis and application to teaching, logical identification and use of teaching strategies, programming for effective perception and understanding, use of stimuli to match the needs of the perceptual processes, development of self-learning skills, and cultivation of creative abilities.[8]

Special training is needed for each of these efforts and yet many college professors cling to the individualistic approach, perhaps harboring plaintively a vision of two persons on the log. HSGP represents such an interdisciplinary effort, but in the view of many university teachers it is heretical to suggest that such a "materials approach" is appropriate for the college-level. For example, in response to a proposal that instructional units comparable to HSGP be produced for the college level, an anonymous but probably reputable geographer, wrote:

> ...any kind of standard teaching units is out of place at the college level. If a college teacher is unable to teach well without ready teaching units, he does not belong at college level. Further elaboration of this point seems unnecessary.

Despite the implied coup de grace in the above, further elaboration is necessary, not only because of the fact that there are now many college teachers who do not "teach well", but more importantly because the statement is illustrative of a serious misunderstanding. It makes little sense to argue that all college geography teachers should in their courses follow religiously a pre-packaged set of instructional materials comparable to HSGP, but it is quite another matter to suggest that such materials, when used selectively according to local contexts, can provide an infusion of

new ideas that can appreciably improve the quality of instruction. This, in fact, has been the experience of many high school teachers with HSGP; some of the units have been used directly, some have been modified to match local situations, and the materials have inspired some teachers to develop entirely new units, all of which is an unhearalded but highly significant contribution of HSGP. Indeed, it has been said that HSGP will be successful if, in a few years, none of the materials will be directly in use but rather that they will have stimulated new materials, approaches, and attitudes in geographic instruction.

The textbook (which few reject on the basis that it is the work of someone else) and the lecture too frequently comprise the college professor's only stock in trade. But teaching that is substantially more complex in its concept and execution than this traditional pattern requires both a more complex method of teacher preparation as well as more diverse and imaginative instructional materials. If we are to broaden both our repertoire of instructional methods and materials and our attitudes toward education, it is not likely that it will be done on the individualistic basis that now exists. Well-structured curriculum materials prepared by teams of specialists are no less promising for the improvement of college instruction than for other levels in the educational system.

The new emphasis on the use of specialists, an admission of the efficacy of a division of labor in the complex educative process, should not be interpreted to mean that the teacher's role is somehow less important or difficult than previously. But his role is now clearly seen to be far from the idea of a methodologist operating with a few traditional patterns.

Today's teacher must be, most importantly, a flexible concept user. According to Woodruff, the teacher needs

> ...a wide-ranging set of concepts which give him the background to recognize the essential nature of each teaching situation as it arises, to chose procedures appropriate to that particular situation with all of the adaptation that implies, and to carry out the selected procedures effectively under whatever circumstances exist at that moment.[9]

This concept-orientation points to a second HSGP strategy which is, essentially, to emphasize concepts, using information or data only to the extent necessary to teach concepts. Clearly, this focus leads away from the "feeding-in-of-information" model mentioned above. That approach has no logical limits, and one using it too frequently measures his teaching success by the amount of material one has "covered." And when the emphasis is placed on transmitting geography's "body of knowledge," the subject matter is found to be so vast that no series of courses, let alone any single course, can contain it, and thus any selection from this cornucopia may be quite arbitrary. HSGP does not, despite powerful voices who would have preferred otherwise, attempt to "cover the world," but rather it strives to achieve a more feasible and a more significant set of goals---to aid the student to develop his own body of knowledge related to how and why geographers do as they do and to convey basic geographic concepts. These goals of instruction are no less appropriate for college geography, especially at the introductory level. Since the subject matter of geography is also the subject matter of other disciplines, it is necessary in teaching geography to emphasize those distinctive interpretations of the subject matter that are made by geographers.

It is important to note that a concept-oriented course of instruction,

as exemplified by HSGP, does not necessarily preclude that "facts" will be learned. Indeed, evaluation of students in HSGP groups and control groups in which instruction was information-oriented in the traditional mode shows no significant difference in the learning of information, per se. Although evaluation techniques are far from perfect, teaching research generally supports the view that students learn "facts" in the context of a conceptual focus; data can be insinuated into the problem situation and will be learned even though the primary objective is concept learning. More will be said later about the meaningfulness to the student of data when presented in this way.

A third and highly significant assumption of HSGP is that a wide variety of instructional media, offering diverse perceptual experiences to the students' senses, increases the probability that interest will be maintained and that concepts will be learned. This assumption is consonant with one of the most significant findings from research on the learning process, i.e., that concept-formation is a non-verbal process. In reviewing this research, Woodruff stresses that concept formation

> ...occurs exclusively through direct sense-perception of real objects and events, storage of those percepts, organization of the percepts into meaningful patterns or concepts, and the empirical testing of those concepts in adjustive situations.[10]

Elsewhere I have argued for the importance of field training in geographic instruction in order to capitalize on the fact that direct perceptions are crucial to concept formation.[11]

This is not to say, of course, that verbal behavior has no role in the educative process, but rather that verbal activity must not be confused or equated with concept formation. Verbal behavior is useful for at least

three functions:

> First, it provides for concept communication, but only if the concepts are already possessed by both the sender and the receiver ...Second, it provides...for verbal storage of information of the data type, in symbolic form. This is not conceptual storage... [But stored in connection with concepts,] the data can be used in decision-making behavior to good advantage...Third, it provides a channel for symbolic strategies in the form of short cuts to conclusions. This is typical of logic or statistics, processes in which one jumps by means of formulae from one set of premise ideas to correct conclusions without going through the conceptual steps between them.[12]

This latter function is, of course, highly confusing when the concepts are missing as anyone will attest to who has tried to get very far in statistics using only "cook-book" methods. Finally, this clarification of the role of verbal behavior suggests that we should be very cautious with the use of terminology in teaching, that it should not be an end in itself, and that its glib usage by students is no guarantee that concepts have been learned. One might even suggest that the ability to discuss and use concepts without reference to the attendant terminology is a principal indication that conceptual learning has occurred.

In addition to the attention-getting value of multi-media materials, the rationale for the diversity of media content in HSGP---the maps, tables, graphs, Lego models, role cards, budget sheets, color slides, photos, and, of course, text--is that it offers to the student many avenues to perceive the subject matter or, more precisely, surrogates of the subject matter. Geographic facts, the subject matter, or what is to be perceived by the student, consist of concrete and specific objects on the earth's surface, engaged in concrete and specific events, which produce specific consequences on that surface. We cannot directly observe concepts or processes in the environment but rather only objects, events, and direct consequences.

> Abstractions, generalizations, and principles are all inventions of a mind, and they remain in the mind that invents them, where they operate as ways of understanding what is seen. These inventions must be made by each mind for itself; they cannot be transferred from a teacher to a student, or from any person to any other person. They cannot be perceived for the first time in a lecture or in a book. They can be recognized in the lecture or book, if one has them even in crude form when he approaches the verbal experience.[13]

The vital distinction to be made for teaching purposes is that the ideas or concepts are derivatives from exposure to the subject matter which may be perceived through several senses, and multi-media instructional materials are meant to provide diverse stimuli to these senses. It can be argued that multi-media teaching is, with the present state-of-the-art, only a "shot-gun" approach based upon the above assumption. One cannot deny the need for further research on learning in order to provide more precise knowledge about matching specific stimuli to sensory perception and ultimately to conceptualization. It is true, however, that the HSGP materials force the teacher out of his accustomed "talker" role, a fact which may help to explain why college professors are resistant to the multi-media strategy.

All of this emphasis on conceptualization probably sounds familiar. Many geography professors have said they are not mainly concerned to have a student learn a host of geographic facts, but rather that he learn to "think geographically." The trouble is that we have not really known how to achieve this end, let alone define it behaviorally. If we did, presumably we would have more students who learn to do so. But, in fact, we marvel when we find a few who we think learn, as we say, to "think geographically." Unless we can specify this aim in behavioral terms, e.g., say what a student

is doing when he is "thinking geographically," this is a flop as an instructional objective.[14]

It should also be freely admitted that conceptualization as a goal of education is not a new ideal. James has recently reminded us that Rousseau espoused individual concept formation against the memorization of facts handed down, and that Pestalozzi taught that thinking was dependent on observation and that words, to be meaningful, must be related to sensory perceptions.[15] What is most significant about the new research in learning today is its skillful use of analytical description and the more precise pictures it is producing of human behavior, learning, the nature of verbal processes, and other related phenomena.

The stress on cognitive learning here, to the neglect of affective learning (attitude or value formation) should not be interpreted to mean that the latter is unimportant but only that this is one facet among many omitted for lack of space. One might note, however, that cognitive and affective learning are not always easily separated. This is revealed, for example, in an HSGP video-tape of students engaged in the Game of Farming: After playing the roles of farmers making decisions throughout the exigencies over many years of environmental fluctuations, market shifts, technological change, and the like, the students are asked what they learned. One student is obviously trying ever so haltingly to respond to the question, but his verbal effort is in vain. Then, in what seems a master-stroke, the teacher asks: "How did you feel?" And as though some great sluice-gate had been opened, the student's words come rushing out to the effect that "I've gone through a lot on this land and

so I certainly don't want to leave my land, give up farming, and move to the city!"

A fourth strategy of HSGP, the last one discussed here, is "inquiry learning." This is perhaps the overall strategy and as such it is related to most of the others. By inquiry learning is meant the basic scientific attitude, sometimes called problem-solving, sometimes called sciencing. It implies uncertainty as to the outcome of inquirying, in contrast to discovery-oriented learning and instruction-oriented learning where outcomes are known in advance. Inquiry learning pervades HSGP. It leads to a recognition of multiple causes and alternative decisions in the spatial context of human behavior. As such, it is not "answer-oriented" but, rather, it provides useful training for decision-making, not just in geography but in other contexts as well. (If "decision-making" is a term more properly reserved for more precise programming techniques, we can simply say that the HSGP strategy calls for student choice.)

This general strategy most certainly is important for instruction in college geography. The problem-solving approach fulfills the need for the student at the introductory level to learn to work with the scientific method as well as to use geography as a subject that is very directly concerned with important problems of mankind that necessitate skillful and informed decision-making. Bruner writes that "the most 'natural' unit one can isolate in intellectual activity consists first in sensing a problem,"[16] which is to say that learning is most likely to occur when a course of instruction is problem-oriented. Furthermore, McNee suggests that because of the quick obsolescence of geographic "truths," "habits of

inquiry [and] positive attitudes toward problem-solving, are of more utility to the student in the long run than memorization of the conclusions of a particular point in time."[17]

In HSGP, inquiry is fostered by the design of the student activities, by the use of materials such as photos, maps, and models, and by use of a variety of formats for class organization such as gaming, role-playing, simulation, and model building. Again, the rationale for all this active involvement of the student is to engage him as broadly as possible with a variety of perceptions of the subject matter and thus to increase the probability that he will conceptualize. But this strategy is seriously misunderstood. For example, the following is a response from another anonymous geographer to the afore mentioned proposal to introduce HSGP strategies into a college-level course:

> [It is proposed] that the HSGP strategies are 'particularly geared to student interest and active involvement' and should therefore be incorporated into college teaching. I have had only limited contact with the HSGP materials, but I would like to suggest that at college level more emphasis should be placed on intellectual stimulation of thought than on stimulation of 'active involvement' such as in building the Portsville model.

Does this geographer, whomever he might be, mean to suggest that student activity and intellectual stimulation are mutually exclusive? Is he implying that sitting passively in the lecture hall is what is most conducive to stimulation of the intellect? Have those scientists directing students in their laboratories or those geographers training students in the field really been so grossly wrong in their approaches, in their assumptions about student learning?

Having discussed some of the strategies and assumptions of HSGP and

having suggested that they be considered for incorporation into college geography instruction, let me now simply list a few of the several salients which might characterize an improved future geographic instruction in our colleges and universities:

1. Instruction will emphasize concept development.
2. Student learning will be based upon a vide variety of stimuli fitted to diverse sensory perceptions. Verbal instruction for the purpose of conveying information will be minimal and will be used primarily to elicit inquiry.
3. Structured curricula, incorporating many media and formats, will provide the context in which a student will increasingly work and advance independently, as he utilizes the teacher as a consultant, diagnostician, and coordinator.
4. We shall know more than we do now about the structure of geography in pedagogical terms so that we shall have a better idea of logical sequencing of concepts and skills. It will be more convincing to students and to ourselves if we can speak of functional or operational pre-requisites, of certain concepts as pre-requisite to others, rather than saying, as we do now, that "Geography 150 is the pre-requisite to Geography 160." The student must understand a basic structure of the discipline if he is to find meaning in its individual components. Perhaps it is in this domain that the teacher-scholar has primary responsibility for providing "relevance."

There are, as everyone recognizes, major constraints to moving in

these directions. One might briefly mention the following, leaving to another time and place a fuller discussion:

1. The established and rigid structure of lecture courses and all that this entails;
2. The lack of emphasis in graduate training on teaching problems;
3. The relative pay-offs in terms of career advancement, prestige, and financial remuneration between teaching and research;
4. The conservativism of students; and
5. The authoritarianism of teachers.

Because of these and other constraints, it would seem that the most realistic moves will be those which begin to introduce changes in the context of what is presently possible, while keeping a hopeful eye on more ideal and perhaps radical departures that will be possible in the future. There is no single strategy, perhaps no set of strategies, that can guarantee success in teaching. But just as the geographic research scholar can quickly become obsolete without paying constant attention to new skills and concepts, the geography teacher who does not become informed about and try to implement improved approaches in his instruction will be derelict in his responsibility to his students, if not dysfunctional, a condition against which heresy is preferable.

Footnotes

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[12]Woodruff, op. cit.

[13]Ibid.

[14]Robert F. Mager, Preparing Instructional Objectives (Palo Alto, Calif.: Fearon Publishers, 1962).

[15]Preston E. James, "The Significance of Geography in American Education," Journal of Geography, Vol. LXVII, No. 8 (November, 1969), p. 475.

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[17]Robert B. McNee, "A Proposal for a New Geography Course in Liberal Education: Introduction to Geographic Behavior," New Approaches in Introductory College Geography Courses, Commission on College Geography Publication No. 4. (Washington: Association of American Geographers, 1967), p. 3.